IBM DB2 11 for z/OS: The database for data and analytics

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At a glance

DB2® 11 for z/OS® expands the value offered to your business by IBM's industry-leading mainframe data server in the following ways:

- Saves money and time with additional DB2 CPU savings and operational efficiencies
- Enhanced superior availability and rock-solid security
- Can connect core operational data with big data to drive business value
- Sophisticated business analytics
- Simpler, faster migration for faster ROI
- Leverages secure connections to support increasing mobile device requests

Selected features that deliver these valuable benefits to your business include the following:

- When compared to running on DB2 10, IBM's internal testing and Early Support Program results revealed that, depending on workload, customers may see "out-of-the-box" DB2 CPU reductions:
  - Up to 10% for complex OLTP
  - Up to 10% for update-intensive batch
  - Up to 40% for complex reporting
- Improved data-sharing performance and efficiency
- Improved utility performance and additional zIIP eligible workloads authorized
- Cost-effective archiving of warm and cold data with easy access to both within a single query
- Intelligent statistics gathering and advanced optimization technology for efficient query execution in dynamic workloads
- Additional online schema changes that simplify management, reduce the need for planned outages, and minimize the need for REORG
- Productivity improvements for DBAs, application developers, and system administrators through improved autonomics
- Efficient real-time scoring within your existing transaction environment
- Enhanced analysis, forecasting, reporting, and presentation capabilities, as well as improved storage management, in QMF™
- Expanded SQL, SQL PL, temporal, and pureXML® function for better application performance
- Faster migration with application protection from incompatible SQL and XML changes and simpler catalog migration

- Extended log record addressing capacity (1 yottabyte) for sites with heavy logging

SAP has announced their successful validation and support of DB2 11 to run SAP applications immediately when DB2 11 is generally available. Details can be found in SAP Note 1850403. Also refer to

http://scn.sap.com/community/db2-for-z-os

Overview

IBM® intends to make DB2 11 for z/OS (DB2 11) generally available on October 25, 2013.

Shrinking budgets, exploding data growth, and dynamic business requirements that require real-time analytics continue to challenge companies everywhere. Effectively delivering scalable solutions with rock-solid security and resiliency makes the demands on IT greater than ever. Building on the formidable capabilities of DB2 10 for z/OS (DB2 10) and the IBM System z® platform, DB2 11 for z/OS (DB2 11) is uniquely positioned to help you meet those challenges head on -- efficiently and cost effectively.

DB2 11 provides secure connections to mobile devices, allowing applications like QMF to confidently provide users access to queries, reports, or dashboards through an ordinary web browser or mobile devices.

DB2 11 easily connects to IBM's Hadoop based BigInsights big data platform using SQL, providing you a simple way to integrate your traditional applications on DB2 for z/OS with big data analytics. This simplifies your ability to improve the customer experience and achieve business advantage.

SAP has announced their successful validation and support of DB2 11. Details can be found in SAP Note 1850403.

DB2 11 for z/OS delivers innovations that can help in these key areas:

Save money, save time, reduce cost

DB2 10 delivered strong DB2 CPU savings that drove great value for IBM clients. DB2 11 follows up with additional CPU savings and improved performance. IBM's internal testing and Early Support Program results show that, depending on the specific workload, you may achieve "out-of-the-box" DB2 CPU savings of up to 10% for complex online transaction processing (OLTP) and up to 10% for update-intensive batch workloads. Complex reporting queries can see up to 25% for uncompressed tables and up to 40% CPU savings when running queries against compressed tables. All of these DB2 CPU savings are compared to running the same workloads on DB2 10. REBIND is needed to obtain the best performance. Additional CPU savings and performance improvements may be possible with application or system changes that take advantage of new performance capabilities, including log replication capture, data sharing using extended log record format, and pureXML . Utility performance capabilities can deliver up to 70% LOAD, up to 40% RECOVER, and up to 20% in REORG elapsed time improvements.

Deep integration between DB2 and System z continues to bring value. Additional utilities processing in RUNSTATS, REORG, and LOAD now run under an enclave SRB and are therefore eligible for zIIP processing[1] , driving greater efficiency and CPU savings.

With IBM zEnterprise™ EC12 (zEC12) and DB2 11, you may achieve additional CPU reductions through the use of pageable large (1 MB) pages and Flash Express , as well as the support of 2 GB pages.

Growing regulatory and business requirements to retain and manage archive data has brought many new challenges. Finding ways to cost effectively build and manage archive data while keeping operational can be daunting. DB2 temporal and

transparent archive technologies and integration with the separately available IBM DB2 Analytics Accelerator for z/OS , provides high-speed access to historical data at a lower cost.

People continue to be your most valuable resources. Additional productivity enhancements delivered in DB2 11 can make DBAs and system programmers even more efficient, driving operational efficiencies and cost savings.

Enhanced continuous availability, scalability, and security for business-critical information

The real-world proven, system-wide resiliency, availability, scalability, and security capabilities of DB2 for z/OS and System z continue to be the gold standard in the industry -- keeping your business running when other solutions may not. DB2 11 continues to excel. It delivers even higher availability with improvements in the REORG utility in addition to more online schema change capabilities such as online data repartitioning, which can significantly reduce the need for planned outages.

With new capabilities, you can reduce the number of REORGs, automatically clean up after index pseudo deletes, and achieve even faster performance when a REORG is needed. Resiliency is further enhanced with improved backup manageability for even faster recovery. You can avoid certain manual recovery actions with extended relative byte address (RBA) and log record sequence number (LRSN) addressing support.

DB2 11 improves concurrency for BIND and DDL operations against long-running persistent threads. Improved cloning capabilities mean less manual effort to roll out cloned environments.

DB2's data sharing capabilities continue to provide the highest standard in availability. DB2 11 adds to this capability with Group Bufferpool and Castout enhancements for even more efficient data sharing performance and scalability.

Sophisticated business analytics

As the amount and types of data grow, efficiently unlocking true business value through business analytics becomes more challenging. Providing effective ways to manage the amount of data and the speed of getting important data to all levels of an organization is a critical requirement for today's enterprises. To meet these growing demands:

- DB2 11 improves innovation, analytics, and data integration with new SQL, and in-database scoring technology.
- Integration with the separately available SPSS® delivers the unique capability of real-time scoring within your existing transaction environment.
- The separately licensed QMF 11 delivers enhanced analysis, forecasting, reporting, and presentation capabilities, as well as improved storage management, to help users at all levels leverage data, find answers, and communicate those decisions.
- With performance improvements in DB2 11, you may see 5% to 10% CPU reduction with large results returning from the separately available IBM DB2 Analytics Accelerator compared to DB2 10.
- Integration with the separately available IBM Hadoop based BigInsights big data platform using SQL, providing you a simple way to integrate your traditional applications on DB2 for z/OS with big data analytics.

Simpler, faster migration for faster ROI

The longer it takes to migrate to a new version, the longer it takes to get your return on investment and provide value to your business. Catalog migration from DB2 10 NFM to DB2 11 NFM is up to 16 times faster than migrating from DB2 9 NFM to DB2 10 NFM. Simpler catalog migration enables faster migration for faster return on your investment. Faster migration with protection for applications from incompatible SQL and XML changes, and simpler catalog migration. Migrations can now proceed prior to making changes to handle any incompatible SQL or XML

changes. The old application can execute on DB2 11 as it did on DB2 10. Once applications are changed, if needed, then the application can take advantage of the new DB2 11 features.

[1]

IBM authorizes customers to use IBM specialty engines (SEs) such as zIIPs, zAAPs, and IFLs only to execute the processing of Eligible Workloads of specific programs expressly authorized by IBM as specified in the "Authorized Use Table (AUT) for IBM Machines" provided at

http://www.ibm.com/systems/support/machine_warranties/machine_code/aut.html

No other workload processing is authorized for execution on an SE. IBM offers SE at a lower price than general processors/central processors because customers are authorized to use SEs only to process certain types or amounts of workloads as specified by IBM in the AUT.

Key prerequisites

- z/OS V1.13 Base Services, (5694-A01), or later
- DB2 11 for z/OS operates on z10™ or later processors running z/OS V1.13, or later

Planned availability date

October 25, 2013

Availability of programs with encryption algorithm in France is subject to French government approval. Contact the Cryptographic Approvals Manager in France, jbbelleteix@fr.ibm.com, Paris DCT.

Description

IBM DB2 11 for z/OS (DB2 11) introduces innovation that matters to improve the business value of your information.

Save money, save time, reduce cost

- Compared to the same workload running on DB2 10, you may achieve up to 10% out-of-the-box DB2 CPU savings for many complex online transaction processing (OLTP) workloads.
- Compared to the same workload running on DB2 10, you may achieve up to 25% CPU savings for complex reporting queries and up to 40% CPU savings when running complex reporting queries against compressed tables. These performance improvements along with the use of the separately available IBM DB2 Analytics Accelerator for z/OS can further enable significant query acceleration and potential cost savings.
- Compared to the same workload running on DB2 10, new SQL PL ARRAY support may bring up to 10% CPU savings for OLTP workloads with higher read-to-write ratios.
- DB2 Utilities now offers more zIIP authorized workload for RUNSTATS and LOAD and faster LOAD processing for improved performance and CPU savings[1] . Additional REORG enhancements minimize DBA workload with automated mapping tables and improved PBG handling.
- Data sharing clients may see performance improve by two to five times from more efficient index structure modification and from full LRSN spin avoidance.
- You may see additional performance and CPU savings by taking advantage of additional enhancements, including log replication capture, data sharing using extended log record format, and pureXML .
- Inline statistics-gathering enhancements greatly reduce the need for RUNSTATS, which can reduce resource consumption.

- Additional optimizer enhancements for distinct, group by, and sparse index support bring performance improvements across a wide variety of queries.
- Deep integration with IBM zEnterprise EC12 (zEC12) brings additional performance improvements in two ways:
  - Using pageable large (1 MB) pages and Flash Express
  - Enabling support of 2 GB pages
- Cost-effective archiving of warm and cold data with easy access to both within a single query

Enhanced continuous availability, scalability, and security for business-critical information

- The need for planned outages is significantly reduced with online data repartitioning capabilities, including support for REORG, REBALANCE, SHRLEVEL, CHANGE, and online ALTER LIMITKEY.
- SWITCH phase reduction and improved drain processing in online REORG deliver additional availability improvements.
- Improve productivity and performance through REORG avoidance and auto index pseudo delete cleanup.
- With extended relative byte address (RBA) and log record sequence number (LRSN) addressing support, you can avoid many manual recovery actions that can potentially cause extended outages.
- Improved backup manageability enables even faster recovery.
- Improved cloning capabilities support automatic VCAT name translation for system-level backup.

Sophisticated business analytics

- Improved performance and DB2 CPU savings bring additional value in running business analytics alongside your core operational data.
- Deploy real-time scoring directly within the transaction when used in conjunction with the separately available IBM SPSS offering.
- Together with the separately available IBM DB2 Analytics Accelerator for z/OS and System z , you can efficiently co-locate OLTP and data warehouse as one integrated workload with great cost effectiveness.
- The separately licensed QMF 11 delivers enhanced analysis, forecasting, reporting, and presentation capabilities, as well as improved storage management, to help users at all levels, leverage data, find answers, make decisions, and communicate those decisions to the rest of their business. New enhancements help both the novice and the power user get up and working quickly for faster ROI.
- Improvements in XML, temporal support, and SQL PL deliver even more capabilities for application developers and solid performance improvements that can lead to additional CPU savings.
- Various SQL enhancements, including support for array data types and global variables, give more flexibility for application developers and simplify application porting.

Simpler, faster migration for faster ROI

- With the new application compatibility feature, migration plans no longer have to wait for applications to deal with any incompatible SQL or XML changes before migrating to the latest DB2 .
- Simpler catalog migration helps your business get the value of DB2 11 faster.

Overview of DB2 features

DB2 11 for z/OS consists of the base DB2 product with a set of optional orderable features. Some of these features are available at no additional charge and others are chargeable.

Chargeable features

DB2 QMF Enterprise Edition feature includes the entire DB2 QMF family of products, enabling enterprise-wide business information across end-user and database platforms. DB2 QMF Enterprise Edition consists of these components:

- DB2 QMF for TSO and CICS®
- DB2 QMF Analytics for TSO (new)
- DB2 QMF High Performance Option (HPO)
- DB2 QMF for Workstation
- DB2 QMF for WebSphere®

New features for each product in the QMF family are as follows:

In QMF for TSO and CICS :

- Improved management of storage for report operations. The QMF storage manager can handle larger amounts of data including LOB and XML. Dynamic storage management is now available throughout your QMF session. In addition, the DSQSBSTG parameter has been enhanced to have a higher maximum value of 2 GB as well as the ability to specify a percentage of available storage to be used for reports. Users can specify storage amounts in bytes, kilobytes, megabytes, or gigabytes, allowing for more precise storage management control.
- Broader support for large data types, including LOB and XML. The 32 KB restriction on DISPLAY or SELECTs with LOB data has been removed, and the EXPORT, IMPORT, and SAVE DATA commands have all been updated to support LOB data. New global variables allow users more granular control of QMF's processing of LOB data. Extended storage support for fetching of LOB and XML data has been introduced, leading to potential performance improvements.
- Increased support for DB2 temporal data. Temporal support has been added for prompted queries, the LIST command and lists in prompted queries, as well as the EXPORT, IMPORT, and SAVE commands.
- Enhancements in SQL queries and QMF commands. QMF 11 for TSO and CICS now allows COMMIT statements in SQL queries. Multistatement queries can now contain SELECT statements, and the setting of additional special registers for DB2 for z/OS 11 is supported. EXPORT DATA now supports the CSV format for use in applications such as Microsoft™ Excel, as well as support for DB2 global variables using the new QMF global variable to control QMF thread allocation. The SQL CALL statement has been enhanced to support DISTINCT and ARRAY data types. These new features provide flexibility when submitting SQL queries and commands.
- Enhancements in application programming support. QMF tracing can be added to applications that use the QMF callable interface. The new QMF TRACE command writes QMF application trace records to the QMF debug set DSQDEBUG.
- Use of 64-bit memory. QMF has been enhanced to make use of 64-bit memory with ease-of-use enhancements for allocating and managing the 64-bit memory, especially when compared to using a spill fill. With 64-bit spill, QMF now automatically allocates 64-bit memory based on your space needs to contain the active DATA object, making for easier administration.
- Better global variable management. Global variables now allow users to set persistent global variables at the panel and user ID level, and save values across QMF sessions in a personal profile, saving time and increasing productivity. Initial global variable support allows for presetting of global variables for all users by the QMF administrator using the SYSTEM user ID or by individual users using the user authorization ID. These values can be specified as updateable and non-updateable.
- LRECL 79 restrictions have been lifted on EXPORT of queries and procs. Prior releases of QMF for TSO and CICS required SQL query and procedure objects to be exported to data sets with an LRECL of 79 bytes. These objects can now be exported to data sets with an LRECL of 79 to 32,760 bytes for new and existing data sets, allowing use of existing DFSMS DATA classes. A new global variable,

DSQEC_DSLRECL1, can be used to set the record size to use when exporting an SQL query or QMF procedure to a new data set.
- Increased control of EXPORT data set sizes through the use of new global variables. In QMF , you can set the number of primary and secondary tracks for data sets that are used to store the results of the EXPORT command. In prior releases, you could specify up to 65,535 tracks for PS and PDS data sets. This limit is now increased to 16,777,215 tracks. The setting of QMF global variable DSQEC_DSALLOC_PRI controls this allocation. This support also allows QMF to function with Extended Address Volumes.

QMF Analytics for TSO (new) delivers additional charting and statistical analysis capabilities directly to the mainframe. These capabilities have long been available in QMF for Workstation and QMF for WebSphere and are now available to QMF TSO users as well. QMF Analytics for TSO adds significant analysis capabilities for users with an existing TSO-based workflow or where data needs to be kept within the security of the z/OS environment. QMF Analytics for TSO is included as part of QMF 11 Enterprise Edition. Features and benefits include:

- New charting capabilities, including geospatial maps, Histograms (column bars), Pie charts, Plot (line) charts, and Tower charts (multiple 3D bars). Charts can be saved for easy retrieval or printed to an external device.
- Enhanced statistical analysis such as curve fitting, discounted cash flow, linear trending, and forecasting. What-if scenarios are supported as part of "Discounted Cash Flow" analysis.
- A user interface designed for ease of use, completely menu driven, with parameter selection panels that are specific to the requested analysis.
- Seamless integration with your existing QMF for TSO environment, invoked from the QMF TSO command line with the SHOW ANALYTICS command, using the current QMF result set for the data to be analyzed.

In QMF High Performance Option:

- SELECT in Query with multiple statements allows a single SELECT statement to be included in a query with multiple SQL statements
- DB2 Commit Scope Improvements allows users to include COMMIT statements in a query with multiple SQL statements in order to control the unit of work

In QMF for Workstation and QMF for WebSphere :

- Ad hoc Reports now gives users the ability to drag and drop QMF queries onto an open canvas in runtime mode and select from a series of display options (charts or tabular presentations). Users can quickly and easily create their own sophisticated reporting objects for great productivity and ease-of-use, especially for those who are new to QMF .
- Visual Applications allows concurrent development on dashboards and integrates ad hoc report functionality into the dashboard.
- Text Analytics allows users to extract entities from unstructured data sources (either file-based or database-based) and display the results graphically. This functionality can recognize entities such as people, products, places, organizations, and so on, as well as the connections between them. It can be configured to recognize enterprise-specific vocabulary and extracts key data from contracts, support records, field notes, and comments, giving the user insight into sources beyond typical structured information. This feature is currently available only in QMF for Workstation.
- Scheduled Tasks. Users can now schedule Queries, Quick Reports, and Visual Reports. Scheduled objects can run based upon users' criteria, providing an autonomic approach to running QMF objects. In addition, a wide variety of actions to take with these objects is now available.
- Quick Reports allows users to create a new type of grid-based GUI report with grouping, aggregation, charts, titles, fonts, and standard text formatting. The new reporting facility wizard provides a simple, prompted approach to QMF report creation.
- Dynamarts allow users to save result sets with the query object and allow QMF dashboards and reports to be partially or fully driven by offline or scheduled data

sets. Users can send a snapshot of the result set and associated report to others to "see it as it was" or they can refresh it to "see it as it is." Dynamarts allow users greater flexibility to share and access QMF dashboards and reports.

DB2 QMF Classic Edition feature supports users working entirely on traditional mainframe terminals and emulators (including IBM Host On Demand) to access DB2 databases. QMF Classic Edition consists of DB2 QMF for TSO and CICS . Refer to the preceding list for the enhancements to QMF for TSO and CICS .

Orderable no-charge feature

z/OS Application Connectivity to DB2 for z/OS feature consists of a Universal Database Driver for z/OS Java™ Edition, a pure Java type 4 JDBC driver designed to deliver high performance and scalable remote connectivity for Java-based enterprise applications on z/OS to a remote DB2 for z/OS database server.

Related no-charge product

IBM DB2 Accessories Suite for z/OS , V3.1 (5697-Q04) is a no-charge offering consisting of three features, each bundling components designed to enhance your use of DB2 for z/OS , including the addition of and changes to the following components:

- The DB2 Accessories Suite V11 feature provides spatial functions supporting DB2 11 for z/OS .
- The JSON capability bundles necessary components that enable DB2 10 for z/OS to be used as a JSON document store.
- An update to Data Studio 4.1 delivers health monitoring, single query tuning, and application development tools for DB2 for z/OS .

For more information, refer to Software Announcement ZP13-0503, dated October 01, 2013 .

[1]

IBM authorizes customers to use IBM specialty engines (SEs) such as zIIPs, zAAPs, and IFLs only to execute the processing of Eligible Workloads of specific programs expressly authorized by IBM as specified in the "Authorized Use Table (AUT) for IBM Machines" provided at

http://www.ibm.com/systems/support/machine_warranties/machine_code/aut.html

No other workload processing is authorized for execution on an SE. IBM offers SE at a lower price than general processors/central processors because customers are authorized to use SEs only to process certain types or amounts of workloads as specified by IBM in the AUT.

Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Hardware and software support services

SmoothStart/installation services

IBM SmoothStart and Installation Services are offered in conjunction with general availability of this product.

Program number

Program name	VRM	Program number
DB2 11 for z/OS	11.1.0	5615-DB2

Previous program information

Previous program name and number: 5605-DB2 IBM DB2 10 for z/OS

Education support

IBM is committed to helping our clients achieve the skills and expertise to take their careers to the next level. We offer a comprehensive portfolio of technical training and education services designed for individuals, companies and public organizations to acquire, maintain and optimize their IT skills in IBM Software and IBM systems.

View more information about our training offerings at

http://www.ibm.com/training

IBM Professional Certification:

Information Management Professional Certification is a business solution for skilled IT professionals to demonstrate their expertise to the world. Certification validates skills and demonstrates proficiency with the most recent IBM technology and solutions.

New exam:

Exam #	Exam Name
312	DB2 11 for z/OS DBA Certification

The DB2 11 for z/OS System Administration Exam will be coming soon.

For additional information about this exam, see

http://www.ibm.com/certify

IBM Redbooks® :

IBM Redbooks offer deep technical insight from IBM and industry experts. These books highlight real-time experiences, and include sample code, typical scenarios, and step-by-step, "how-to" guidelines.

IBM Form No.	Title
SG24-8180	DB2 11 for z/OS Technical Overview

For additional Redbooks , see

http://www.redbooks.ibm.com/

Contact your IBM representative for course information.

Technical information

Specified operating environment

Hardware requirements

Processors

DB2 11 for z/OS operates on z10 or higher processors running z/OS V1.13, or later. The processors must have enough real storage to satisfy the combined requirements of:

- DB2
- z/OS
- The appropriate DFSMS storage management subsystem components, access methods, telecommunications, batch requirements, and other applications

DB2 11 is expected to require increased real storage as compared to DB2 10 for z/OS .

The configuration must include sufficient I/O devices to support the requirements for system output, system residence, and system data sets. Sufficient disk storage must be available to satisfy the user's information storage requirements and can consist of any direct-access facility supported by the system configuration and the programming system.

In addition to listing auxiliary storage and data communications devices, this section identifies function-dependent hardware requirements and virtual storage requirements.

Auxiliary storage

DB2 is independent of disk, solid-state devices (SSDs), and tape device type. You can use any magnetic, optical, or tape device that is supported by the data facilities component of DFSMS or the DB2 data sets. Tape products are not supported for databases but can be used for the DB2 archive log and utility functions.

The following DB2 data sets are supported by the following device types:

- Active recovery log data sets: disk
- Archive recovery log data sets: disk, tape
- Image copy data sets: disk, tape
- Bootstrap data sets: disk
- User data sets: disk, tape (if migrated by HSM)
- DB2 catalog data sets: disk
- Work data sets (for utilities): disk, tape

If these data sets are on a disk that is shared with other z/OS systems, you should use global resource serialization to prevent concurrent access by more than one z/OS system.

The minimum disk space requirement, based on installing DB2 using the panel default values, is approximately 1.3 GB. You need additional disk space for your data.

If you use dual logging and tape for the log archiving device, you need at least two tape drives.

Data communications devices

DB2 operations can be controlled from:

- The system console
- Authorized IMS™ Transaction Manager terminals
- Authorized CICS terminals
- TSO terminals (by authorized users)

Function-dependent hardware requirements:

DRDA® AES user ID password encryption

DRDA AES user ID password encryption uses the following ICSF APIs: CSNEOWH, CSNERNG, CSNFPKB, CSNFPKE, CSNESYE, and CSNESYD. Refer to *z/OS ICSF Application Programmer's Guide* for additional information on the usage of these APIs, including hardware requirements.

DSNLEUSR

DSNLEUSR uses the following ICSF APIs: CSNBCKM, CSNBENC, and CSNEDEC. Refer to *z/OS ICSF Application Programmer's Guide* for additional information on the usage of these APIs, including hardware requirements.

DRDA datastream encryption

DRDA datastream encryption uses the following ICSF APIs: CSNECKM, CSNERNG, CSNFPKB, CSNFPKE, CSNEENC, and CSNEDEC. For more information about these APIs, including hardware requirements, see *z/OS ICSF Application Programmer's Guide* .

Note: Where possible, the recommended method to secure connections is by using the z/OS Communications Server IP Application Transparent Transport Layer Security (AT-TLS).

Encryption and decryption functions

Built-in functions for encryption and decryption require cryptographic hardware in a cryptographic coprocessor, cryptographic accelerator, or cryptographic instructions.

Group buffer pool write-around support

Group buffer pool write-around support requires coupling-facility control code (CFCC) and z/OS cross-system extended services (XES) support. The CFCC support is delivered in CFLEVEL 18 and rolled back to CFLEVEL 17. The z/OS XES support is delivered in z/OS V2.1 and rolled back to z/OS V1.12 and z/OS V1.13. For z/OS V1.13, APARs OA40966 and OA37550 are required.

For more information about Coupling Facility (CF) levels, visit

http://www.ibm.com/systems/z/advantages/pso/cftable.html

2 GB frame size for buffer pools

A 2 GB frame size require a zEC12 processor and APAR OA40967 for z/OS V1.13.

Pageable 1 MB large pages

Pageable 1 MB large pages require a zEC12 processor and the Flash Express feature (FC 0402) plus RSM Enablement Offering (FMID JDB778H).

Function-dependent hardware requirements for QMF components

QMF runs on any processor that is supported by the operating system. However, some operations will not work with columns that contain decimal floating-point data if the processor on which QMF is running does not support decimal floating-point instructions.

QMF can access all of the DASD devices that are supported by z/OS and DB2 for z/OS , as well as all display devices supported by Graphical Data Display Manager (GDDM®).

To implement a National Language Feature that uses a double-byte character set (DBCS), you need a workstation that provides DBCS support. Ensure that this device is supported by GDDM .

For the amount of storage required to copy the QMF Version 11 libraries from the distribution media using SMP/E, refer to the QMF program directory that is appropriate for your QMF edition and national language.

When you plan your region size, consider the storage required to load modules during initialization and the virtual storage requirements for report operations. Restriction: For TSO only, consider the amount of space required to run applications other than QMF .

QMF for Workstation/WebSphere V11 installation platforms supported:

- Mac OS X 10.6, 10.7, and 10.8
- Windows™ XP, Vista, Windows 7, Windows 8, Windows Server 2008, and Windows Server 2012
- Red Hat Enterprise Linux™ (RHEL) 5 and 6, and SUSE Linux 10, 11 and 12

QMF for Workstation requires:

- Network connectivity
- Approximately 1 GB disk space
- Approximately 1 GB of RAM

QMF for WebSphere requires:

- Approximately 500 MB disk space
- Approximately 1 GB of RAM on each server in which it is installed

Software requirements

This section lists licensed programs, or specific elements and features of licensed programs, that are required in the DB2 11 environment. You can use subsequent versions or releases of the programs, such as z/OS Version 2.1 (works with all currently supported DB2 for z/OS versions), unless stated otherwise. This section also identifies requirements that are associated with specific DB2 capabilities, as well as optional programs that you can use with DB2 11. Refer to the following websites for the most current information

http://www-03.ibm.com/systems/z/os/zos/support/index.html
http://www.ibm.com/software/data/db2/zos/support.html

Operating system and support programs

DB2 11 requires the function that is provided by the following licensed programs or their equivalents. Subsequent versions or releases of these products are acceptable.

- z/OS V1.13 Base Services (5694-A01) with the following base and optional elements:
  - DFSMS V1.13
  - Language Environment® Base Services
  - z/OS V1.13 Security Server (RACF®)
- IRLM V2.3 (delivered with DB2 11), plus APARs PM84765 and PM85053

If DB2 11 is installed with IRLM V2R3 into the same SMP zone as any version of IMS with IRLM V2R2, IRLM V2R2 will be deleted during the SMP/E installation of IRLM V2R3.

Notes :

- New functions are available only in new-function mode (NFM) unless explicitly stated otherwise in the product documentation. A general exception exists for optimization and virtual storage.
- z/OS Unicode Services and appropriate conversion definitions are required.
- Some of the basic operation of a DBMS is provided by utility functions such as backup, recovery, reorganization, loading and unloading data, gathering statistics, and checking data, indexes, and large objects. You should ensure that these functions are provided either by ordering DB2 Utilities Suite for z/OS , V11 or by obtaining equivalent function elsewhere.

Virtual storage requirements

Most of DB2 data resides in shared memory of the DB2 address spaces, above the bar. DB2 11 for z/OS requires 1 TB of contiguous of 64-bit shared private storage above the 2 GB bar for each DB2 subsystem. This storage is virtual, controlled by the z/OS HVSHARE parameter in IEASYSxx. This storage is not backed at allocation, only as it is used. Most control blocks and buffers reside in the extended private area above the 2 GB bar, while modules and some data resides above the 16 MB line, but below the 2 GB bar.

The amount of space needed for the common service area (CSA) below the 16 MB line is approximately 40 KB for each DB2 for z/OS subsystem and approximately 24 KB for each IRLM subsystem. High concurrent activity, parallelism, or high contention can require more E/CSA. The amount of 64-bit above the bar common storage needed for each DB2 subsystem is a minimum of 6 GB of contiguous storage and is controlled by the z/OS HVCOMMON parameter in IEASYSxx.

Function-dependent program requirements

The following functions of DB2 require specific licensed programs, or features of licensed programs, before they can be used. Refer to the relevant installation information to ensure that you have all required and recommended products.

- **Application execution:** Applications written in high-level programming languages, such as applications or stored procedures written in the C language and using the ODBC or CLI interfaces to DB2 , require Language Environment at run time. Applications or stored procedures written in Java , such as those using the JDBC or SQLJ interfaces to DB2 , require IBM SDK for z/OS , Java 2 Technology Edition V5 or later, at run time.

Requirements for dependent functions

- System-level Point-in-Time (PIT) Backup and Recovery function needs:
  - DFSMShsm
  - DFSMSdss
  - FlashCopy® V1
  - FlashCopy V2 (required for object-level recovery from system-level backup and FlashCopy image copy)
- **z/OS Workload Manager (WLM) support**
  - The ability to establish z/OS performance objectives with larger values for individual DDF server threads requires z/OS V2. This capability is available in z/OS V1.13 via APAR OA39810.
- **DDF synchronous receive**
  - Performance improvements for DDF synchronous receive operations require z/OS V1.13 via APAR PM80004 or z/OS V2.

- **Encryption and decryption functions**
  - Built-in functions for encryption and decryption require z/OS Cryptographic Services Integrated Cryptographic Service Facility (ICSF).
- DRDA data stream encryption can optionally use z/OS Cryptographic Services Facility (ICSF).
- DB2 QMF
  - The QMF Classic Edition feature includes DB2 QMF for TSO and CICS .
  - The QMF Enterprise Edition feature includes the following components:
    -- DB2 QMF for TSO and CICS
    -- DB2 QMF Analytics for TSO (new)
    -- DB2 QMF High Performance Option (HPO)
    -- DB2 QMF for Workstation
    -- DB2 QMF for WebSphere

  For the QMF 11 version, the following releases of DB2 are supported:

  - 5615-DB2, DB2 11 for z/OS
  - 5605-DB2, DB2 10 for z/OS (all modes except CM8, CM8*, ENFM8, ENFM8*), with APAR PM50434
  - 5635-DB2, DB2 9 for z/OS (NFM) with APAR PM45482

  All other operating requirements for QMF Version 11 can be found at

  http://www-01.ibm.com/support/docview.wss?uid=swg27039374

  For DB2 QMF Analytics for TSO, note that GDDM-PGF, a component in z/OS , is required, for advanced graphical capabilities on TSO. Refer to the web page above for other requirements of DB2 QMF Analytics for TSO and QMF for TSO and CICS .

Limited-use license for z/OS Application Connectivity to DB2 for z/OS : The zero-priced z/OS Application Connectivity to DB2 feature, a Type 4 JDBC driver, is licensed for installation and use solely on z/OS . Its sole authorized use is limited to connecting an application that runs on z/OS to Version 7, 8, 9, 10, or 11 of DB2 for z/OS running in a separate partition on the same server as the application or on a different z/OS server. You can also connect applications to a subsequent supported version of DB2 UDB for z/OS . Authorized use does not extend to applications that run on Linux or any other platform or operating system.

Optional program requirements

To enable the following functions for use with DB2 for z/OS , use of the specified optional licensed products is required. This section describes which versions of these associated products are tolerated by DB2 11 for z/OS .

Connectivity

For database applications that run on Linux , UNIX™ , or Windows operating systems, customers can use DB2 Connect™ and then perform one of the following actions:

- Install the IBM Data Server Driver package and deploy one of the client drivers to access DB2 for z/OS through a DB2 Connect Server.
- Install the IBM Data Server Driver package and deploy one of the provided client drivers to access DB2 for z/OS directly

Both of these approaches, direct access or access through the gateway, provide runtime support to access DB2 by applications that use ODBC, CLI, .NET, OLE DB, PHP, Ruby, JDBC, pureQuery, JPA, SQLJ, Python, Perl, and more. These approaches can be used alone or in combination, as needed.

DB2 for z/OS by using one of the client drivers that is provided with the IBM Data Server Package without the use of a DB2 Connect server is recommended for the best performance and availability. To choose the right IBM Client Package for your needs, see the documentation for the DB2 Connect product:

http://pic.dhe.ibm.com/infocenter/db2luw/v10r5/topic/com.ibm.swg.im.dbclient.install.do c/doc/c0022612.html

DB2 for z/OS supports DRDA as an open interface, allowing access from any client. If you want a seamless migration where your remote applications must continue to operate throughout the migration process, DB2 Connect Version 10.1 Fixpack 2 or DB2 Connect Version 9.7 Fixpack 6, or later, are recommended clients to help support such a seamless migration when you migrate your DB2 data sharing group.

DB2 Connect Version 10.5 Fixpack 2 exploits DB2 11 features. All versions can access DB2 11 for z/OS but Version 10.5 Fixpack 2 or higher is needed to exploit some of the DB2 11 features such as the following features:

- Array support
- Autocommit performance improvements for procedures and cursors
- Data sharing support for global variables
- Longer client information fields

DB2 11 acting as a client supports the following relational database products:

- IBM DB2 for Linux , UNIX , Windows 9.5 (5765-F41), or later

  DB2 Enterprise Server (ESE) for Linux , UNIX , and Windows V9.5 (5765-F41), or later

  DB2 Express® Edition for Linux , UNIX , and Windows , V9.5 (5724-E49), or later

  Database Enterprise Developer Edition V9.5 (5724-N76), or later
- IBM DB2 for iSeries® V6.1 (5761-SS1), or later
- DB2 Server for VSE and VM V7.3 (5697-F42), or later
- Any other DRDA-compliant relational DBMS server

Web connectivity is provided by any of the DB2 Connect clients using one of the IBM Data Server clients or drivers.

For DB2 support services, refer to

http://www-01.ibm.com/software/data/db2/db2connect

JDBC: DB2 11 supports the following JDBC Application Programming Interface specification levels:

- JDBC 3.0 API requires any of the following at run time:
  - IBM 31-bit SDK for z/OS , Java 2 Technology Edition, V5 (SDK5) (5655-N98), or later
  - IBM 64-bit SDK for z/OS , Java 2 Technology Edition, V5 (SDK5) (5655-N99), or later
- JDBC 4.0 API requires any of the following at run time:
  - IBM 31-bit SDK for z/OS , Java Technology Edition, V6 (SDK6) (5655-R31), or later
  - IBM 64-bit SDK for z/OS , Java Technology Edition, V6 (SDK6) (5655-R32), or later

  For more information, refer to

  http://www.ibm.com/servers/eserver/zseries/software/java/

The following transaction management products work with DB2 11:

Information Management System (IMS)

- IMS V13 (5635-A04)
- IMS V12 (5635-A03)
- IMS V11 (5635-A02)

Customer Information Control System (CICS)

- CICS Transaction Server for z/OS , V5.1 (5655-Y04)
- CICS Transaction Server for z/OS , V4.1 and V4.2 (5655-S97), or later
- CICS Transaction Server for z/OS , V3.1 and V3.2 (5655-M15), or later

Note: For CICS V3.1 and V3.2, you also need APAR PM01880 to return the correct version and release number for DB2 11.

Query support: The following query programs work with DB2 :

- DataQuant for z/OS V1.2 (5697-N64), or later
- Query Management Facility™ (QMF) family of products, versions 9, 10, and 11
- Cognos® BI Server, V10.2 (5724-W12)

Programming languages: The following application development programming languages can be used to build applications for DB2 11:

Building applications using a DB2 precompiler:

- Assembler
  - High Level Assembler, part of the System Services element of z/OS
- C/C++
  - C/C++ (without Debug Tool), which is an optional priced feature of z/OS
- COBOL
  - Enterprise COBOL for z/OS , V3.4 (5655-G53)
  - Enterprise COBOL for z/OS , V4.1 (5655-S71), or later
  - Enterprise COBOL for z/OS , V5.1 (5655-W32)
- Fortran
  - VS Fortran V2.6 (5668-806, 5688-087, 5668-805)

    Note: New data types and new SQL functions (such as FETCH CONTINUE) are not supported since DB2 9 for z/OS .
- PL/I
  - Enterprise PL/I for z/OS , V3.9 (5655-H31)
  - Enterprise PL/I for z/OS , V4.1 (5655-W67), or later

Building applications using a DB2 coprocessor:

- C/C++
  - C/C++ (without Debug Tool), which is an optional priced feature of z/OS
- COBOL
  - Enterprise COBOL for z/OS , V3.4 (5655-G53)
  - Enterprise COBOL for z/OS , V4.1 (5655-S71), or later
  - Enterprise COBOL for z/OS , V5.1 (5655-W32) later
- PL/I
  - Enterprise PL/I for z/OS V3.9 (5655-H31)
  - Enterprise PL/I for z/OS V4.1 (5655-W67), or later

Building applications that are not supported with a precompiler or coprocessor:

- Java
  - Applications or stored procedures written in Java , such as those using the JDBC or SQLJ interfaces to DB2 , require IBM 31-bit SDK for z/OS , Java 2 Technology Edition V5 (5655-N98), or later, at run time.

    Optionally, the following may be used for applications written in Java (not including Java stored procedures):

    -- IBM 64-Bit SDK for z/OS , Java 2 Technology Edition, V5 (SDK5) (5655-N99), or later, at run time

    Note: 5655-N98 and 5655-N99 are independent products and can co-exist on the same z/OS system.
- REXX
  - z/OS V1R13.0 TSO/E REXX Reference (5694-A01)
- SQL Procedure Language
  - Native SQL Procedure Language
  - External SQL Procedure Language, which requires a C language compiler
- APL2® (one of the following):
  - Mainframe APL2 V2.2 (5688-228) (full APL2)
  - APL2 Application Environment (5688-229)

Operational support: The following programs provide operational support for DB2 11:

- DFSMS features, part of the Systems Management optional feature of z/OS ; specifically:
  - DFSMShsm for archiving
  - DFSMSdss for concurrent copy in Utilities

Tools support

Refer to the IBM Data Management Tools website for the complete list of products

http://www.ibm.com/software/data/db2imstools

Refer to the Information Management Tools and DB2 11 Compatibility website for applicable tools service requirements to support DB2 11

http://www-01.ibm.com/support/docview.wss?uid=swg21609691

IBM Tools for Replication Management and Database Recovery

- IBM Tools for Replication Management, including the following:
  - IBM InfoSphere® Data Replication for DB2 for z/OS , V10 (5655-DRP)
- IBM Tools for Database Recovery, including the following tools:
  - IBM DB2 Recovery Expert for z/OS , V3.1 (5655-W78), plus APARs PM75735 and PM82261
  - IBM DB2 Change Accumulation Tool for z/OS , V3.1 (5697-P45), plus APAR PM75396

IBM Tools for Database Application Management, including the following tools:

- IBM DB2 Bind Manager for z/OS , V2.4 (5655-E43), plus APAR PM78883
- IBM DB2 Path Checker for z/OS , V4.1 (5697-Q01), plus APAR PM82461
- IBM DB2 Table Editor for z/OS , V4.4 (5697-G65), plus APAR PM75144
- InfoSphere Optim™ pureQuery Runtime for z/OS , V3.3, (5655-W92)

IBM Tools for Database Administration and System Management Support, including the following tools:

- DB2 Administration Tool for z/OS , V10.2 (5655-W34)
- DB2 Object Comparison Tool for z/OS , V10.2 (5655-W36), plus APAR PM81174
- InfoSphere Guardium® Data Encryption for DB2 and IMS Databases, V1.2 (5655-P03)
- InfoSphere Optim Configuration Manager for DB2 for z/OS , V3.1, (5655-AA3)
- IBM Data Studio V4, available at

  http://www.ibm.com/developerworks/downloads/im/data/learn.html

IBM Tools for Recovery Management, including following tools:

- IBM Log Analysis for z/OS , V3.4 (5655-T56)
- IBM InfoSphere Optim Workload Replay for DB2 for z/OS , V3.1 (5655-O18)

IBM Tools for Utilities Management, including the following tools:

- DB2 Automation Tool for z/OS , V4.1 (5655-E37), plus APAR PM75391
- DB2 Cloning Tool for z/OS , V3.1 (5655-N15), plus APAR PM76594
- DB2 High Performance Unload for z/OS , V4.2 (5655-AA1), plus APARs PM78638 and PM85014
- DB2 Sort for z/OS , V1.3 (5655-W42)
- DB2 Utilities Enhancement Tool for z/OS , V2.2 (5655-T58), plus APARs PM77500 and PM80231
- DB2 Utilities Suite for z/OS , V11.1 (5655-W87)

IBM Tools for Performance Management include the following:

- DB2 Query Monitor for z/OS , V3.1 (5655-V42), plus APAR PM75732
- DB2 SQL Performance Analyzer for z/OS , V4.1 (5655-W60), plus APAR PM59925
- IBM Tivoli® OMEGAMON® XE for DB2 Performance Expert on z/OS , V5.1 (Modification Level 1) (5655-W37)
- InfoSphere Optim Query Workload Tuner for DB2 for z/OS , V4.1 (5655-AA4)

Other miscellaneous IBM Tools include the following:

- IBM Tools Base for z/OS , V1.3 (5655-V93)

Compatibility

DB2 11 for z/OS is upwardly compatible with earlier releases of DB2 for z/OS . Migration with full fallback protection is available for customers running on DB2 10. Existing customers should ensure they are successfully running on DB2 10 for z/OS (NFM) before migrating to DB2 11. For more information, see Information APAR II14660.

User group requirements

This announcement satisfies or partially satisfies many requirements from one or more of the worldwide user group communities for DB2 for z/OS together with DB2 Utilities Suite.

```
20062 Limited Compression Dictionary Availability
20063 Aliases or synonyms for sequences
20071 DB2 or IRLM in restart phase should check whether the
      previous IRLM is already down
20072 Add zIIP detailed information at the SQL Event level
20073 Processing IMS ACEE Information by RACF for DB2
20074 Removing IFCID239 from Accounting Trace Class 1
20075 Need parallel processes for " access db mode (open) "
```

20076 Extend IFI instrumentation and DRDA MONITORRD Element to support extended monitoring
20077 Need SQL Statement Type added to IFCID 58
20078 Cannot correlate all I/O IFCIDs to thread
20930 Use of alias for sequences
20122 Increase DSMAX to 200,000
21168 APREUSE(ERROR) and APCOMPARE(WARN). Simply combining them to yield APREUSE(WARN)
21311 Add the word connection to DSNV412I message to clarify connection name
21406 Performance improvement through Vendor scratch pad feature
21653 Single Bufferpool with pagefix YES and 1MB page size support multiple DB2 object (TS & IX) CISIZE definitions.
21666 Dynamic CDB Update without DDF outage
22096 ALIAS for SEQUENCE's
22126 For -180 SQL Err, display colon HV position number rather than blank or *N
22130 Enable parallelism with multi-row fetch (MRF)
22131 (Re-)Bind of plan (and packages) although they are allocated
22399 Reaching DB2 RBA limit - need permanent solution
22481 Use -DISPLAY UTILITY command output for stopped utilities
22493 Externalize zIIP and zAAP eligible time in DB2 accounting SMF record.
22503 A method to automatically refresh a WLM stored procedures address space when z/OS RRS has been stopped and re-started.
22747 ACCUMACC enhancements
23049 Virtual Index Feature for Index on Expression
23431 DB2 9 support for binding encoding in CCSID 1156/1157
23542 Concurrent binds with dynamic migration to new access path
23730 SQL Enhancement
23885 Remove index only access overhead (MR0111126553)
24010 Runstats should be able to reset statistics
24011 Expanded input Options of RUNSTATS Utility
24020 Different DB2 Bufferpool parameter to control whether Large Pages should be used
24140 Reduct of the STOP DATABASE timeout value without reducing of the IRLMRWT value
24292 Statement-level option for committed read independent of EVALUNC
24293 DB2 restart performance after unplanned outage
24319 Leading database for compression / Enable consolidation on RRF
25940 Improve performance of backout
25941 Remove Empty Partitions from PBG Tables During Reorg
25945 Ability to roll forward with system restore on a clone
25948 Better reporting of DB2 Temp tablespace approaching Out of space condition
25954 Extend the REBALANCE option to online-REORG
26271 Virtual Index Support for Index on Expression
26737 DB2 Package Last Execution in Real-time stats
26742 Cleanup of pseudo-delete RIDs
27164 DB2 z/OS Restart Lite and Retained Locks
27165 DB2 z/OS deadlock and timeout message changes
28426 Provide 'MODIFY DDF PKGREL(COMMIT)' for packages
28433 Partly unique index
28470 Longterm pagefix on all i/o buf outside the BP (new zparm-switch)
28471 Intermediate output in case of message buffer overflow
28490 Display storage usage of temp tablespaces
28493 Inheritance of DEFINE attribute
28838 Synchronize behavior of DB2 on z/OS with distributed platforms on SQLCODE= +100 situation
29589 Access Path Stability with Viewchanges in DB2 V10
31183 Improve performance of SQL MAX function
31647 COMPACT=YES is applicable for modern "tape" systems
33208 DB2 should not disable DB2 Lock Avoidance for a Data Sharing Group when stopping a healthy DB2 subsystem
MR00031816 Drop of a column in a DB2-table
MR00039130 Provide support for the "Drop Column" command
MR00039691 DB2 - Remove columns from tables using ALTER instead of DROP
MR00052327 Remove erroneous added column
MR00063646 Ability to drop columns (BDUG)

MR00070625 Drop column capability in DB2
MR010410353 REORG multiple parts in a listdef with improved processing for NPIs
MR0111126553 Remove index only access overhead
MR0119074614 Online Reorg without any application interrupt
MR0120126827 Expand predicate pushdown into query blocks with scalar fullselects in the select list
MR0123086823 Increase CPU-priority of Online Reorg-job
MR012309299 REORG SWITCH phase
MR012712229 Support for unbound XML data needed
MR0201096738 Inplace Online Reorg, DB2 for z
MR0202115920 DB2z cancel processing cannot reliably cancel SRB/Enclave in some intensive processing
MR0203111141 Reaching DB2 RBA limit - need permanent solution
MR020509414 Support for XML in Crossloader Utility
MR0215084359 Reaching DB2 RBA limit - need permanent solution
MR021706595 Alter partition limit keys as online operation whenever possible
MR0301112411 Enhancement to LOAD parallel by partition range
MR0302115240 redrive auth.control at DYNAMICRULES(BIND) and CACHEDYN=YES
MR0304105614 Enable recovery to a PIT before a materialized deferred ALTER
MR030812178 DYNAMICRULES(BIND) CACHEDYN(YES) and RACF Security
MR0315065512 When ACCUMACC >=2, accounting data for packages are rolled up, and various information
MR0318115704 DB2 Authorization controlled with racf
MR0323112318 Single Bufferpool with pagefix YES and 1MB page size support multiple DB2 object (TS & IX) CISIZE definitions
MR0411072038 REORG REBALANCE
MR041400451 DISPLAY UTILITY Command, Output Enhancements
MR0414062652 High Wait time in CML Module
MR041703218 Inplace Online Reorg
MR0421085925 Partition level inline image copy with TS level reorg
MR0503113540 Populate Sample Database with XML data
MR0512111830 Cost reduction may not be given to the correlated subquery when it benefits from bufferpool
MR051611382 Making the RACF behavior same as DB2 behavior for the BIND command OWNER processing
MR0521104512 Allow virtual Index for XML and Expression Indixes
MR0530057018 DROP COLUMN
MR0612097138 Add "DROP PARTITION" capability for PBG tablespaces
MR0620116835 Predicate pushdown into view
MR0622114829 Display storage usage of temp tablespaces
MR0626092244 Reorg large and disordered indices
MR0628046312 RECOVER of DBD01 scans unnecessary log datasets
MR0630064320 Need reorg to identify shrlevel change drain contention resources
MR0731085257 UNLOAD utility: limiting number of parallel unloaded partitions not possible
MR0807117114 Provide a breakdown of DB2 elapsed time across all transactions
MR0809102455 Pass resource name/resource type in IFC44/21 instead of N/P
MR0817074411 Reaching DB2 RBA limit - need permanent solution
MR0820072828 Runstats should be able to set the default statistics values
MR0922086335 Large dataset support for utility datasets

MR0928005914 Need More Info From Display Utility Command
MR0928045216 Extend V8 RUNSTATS options to INLINE statistics
MR1005105716 Drop Column
MR1013083312 TEMPLATE Support of DSNTYPE =LARGE
MR101410404 DB2 remote queries do not cancel with QMF
MR101711481 Provide network statistics for commit and rollback
MR1018102140 Require special authority (DBADM or SYSADM) to create a Sequence Object
MR1026046423 Reorg return code after drain fail
MR1031064251 Use -DISPLAY UTILITY command output for stopped utilities
MR1103043453 Add RESET KEYWORD to the RUNSTATS utility
MR1104095110 Online Reorg with changing partition limit key

```
MR1105032449 Enhancement to DISPLAY Database CLaimers command to
             include token information for RRSAF thread
MR1107034713 Allow partition level inline copy with REORG
MR1108103934 Fitting more AUTHIDs into CACHE - AUTHCACH zparm
MR1108104248 Enhance 00C90084 message
MR1121065350 Runstats RESET
MR1121115947 DB2 Mapping Table Index capacity increasing
MR0302115240 redrive auth.control at DYNAMICRULES(BIND) and
             CACHEDYN=YES
MR0304105614 Enable recovery to a PIT before a materialized
             deferred ALTER
MR030812178  DYNAMICRULES(BIND) CACHEDYN(YES) and RACF Security
MR0315065512 When ACCUMACC >=2, accounting data for packages are
             rolled up, and various information
MR0318115704 DB2 Authorization controlled with racf
MR0323112318 Single Bufferpool with pagefix YES and 1MB page size
             support multiple DB2 object (TS & IX) CISIZE
             definitions
MR0411072038 REORG REBALANCE
MR041400451  DISPLAY UTILITY Command, Output Enhancements
MR0414062652 High Wait time in CML Module
MR041703218  Inplace Online Reorg
MR0421085925 Partition level inline image copy with TS level
             reorg
MR0503113540 Populate Sample Database with XML data
MR0512111830 Cost reduction may not be given to the correlated
             subquery when it benefits from bufferpool
MR051611382  Making the RACF behavior same as DB2 behavior for
             the BIND command OWNER processing
MR0521104512 Allow virtual Index for XML and Expression Indixes
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MR0612097138 Add "DROP PARTITION" capability for PBG tablespaces
MR0620116835 Predicate pushdown into view
MR0622114829 Display storage usage of temp tablespaces
MR0626092244 Reorg large and disordered indices
MR0628046312 RECOVER of DBD01 scans unnecessary log datasets
MR0630064320 Need reorg to identify shrlevel change drain
             contention resources
MR0731085257 UNLOAD utility: limiting number of parallel unloaded
             partitions not possible
MR0807117114 Provide a breakdown of DB2 elapsed time across all
             transactions
MR0809102455 Pass resource name/resource type in IFC44/21 instead
             of N/P
MR0817074411 Reaching DB2 RBA limit - need permanent solution
MR0820072828 Runstats should be able to set the default statistics
             values
MR0922086335 Large dataset support for utility datasets
MR1124113434 Alleviate Latch Class 14 contention issues
MR1210094436 Package level stats do not work with accounting roll
             up
MR1215053610 Provide option DROP DISTRIBUTIONS for RUNSTATS
             Other Federated cloning support
```

Planning information

Customer responsibilities

Review the sections in this announcement that describe the hardware and software dependencies for DB2 11 for z/OS .

Migration considerations

DB2 11 is upwardly compatible with earlier releases of DB2 for z/OS . Migration with full fallback protection is available for customers running on DB2 10 for z/OS . Existing customers should ensure they are successfully running on DB2 10 for z/OS (NFM) before migrating to DB2 11. For more migration information, see Info APAR II14660.

During migration, be aware of the functions that are deprecated in DB2 11. Although they are supported in DB2 11, support for these functions might be removed in the

future. Avoid creating new dependencies that rely on these functions, and if you have existing dependencies on them, develop plans to remove these dependencies.

The following functions are deprecated in DB2 11:

- The SQL processing options NEWFUN(YES) and NEWFUN(NO) are deprecated, and the NEWFUN(V11) option is added in DB2 11. Use NEWFUN(V11) instead of NEWFUN(YES). Use NEWFUN(V10) instead of NEWFUN(NO). The NEWFUN(V8) and NEWFUN(V9) values are supported in DB2 11, but they cause the precompilation process to support only a DB2 Version 8 or DB2 Version 9 level of function.
- The dsnhdecp parameter values NEWFUN=YES and NEWFUN=NO are also deprecated. Although these values are supported in DB2 11, you should use NEWFUN=V11 instead of NEWFUN=Yes and use NEWFUN=V10 instead of NEWFUN=NO.
- SYNONYMS are deprecated. Use aliases instead. Synonyms are similar to aliases, but are supported only for compatibility with previous releases. Synonyms behave differently with DB2 for z/OS than with the other DB2 family products. Do not create or use synonyms when writing new SQL statements or when creating portable applications.

The following subsystem parameters are deprecated in DB2 11:

- Private_Protocol: In later DB2 releases, the functionality that is controlled by this parameter is no longer applicable.

Some utility options are deprecated. Although they are supported in DB2 11, they will be removed in a later release of DB2 .

- REORG TABLESPACE UNLOAD ONLY is deprecated. Use the UNLOAD utility instead.
- REORG TABLESPACE UNLOAD PAUSE is deprecated. Use the UNLOAD FORMAT INTERNAL utility instead.
- REORG TABLESPACE UNLOAD EXTERNAL is deprecated. Use the UNLOAD utility instead.
- REORG TABLESPACE INDREFLIMIT is deprecated. Use the DSNACCOX stored procedure to determine if the object needs to be reorganized.
- REORG TABLESPACE OFFPOSLIMIT is deprecated. Use the DSNACCOX stored procedure to determine if the object needs to be reorganized.
- REORG TABLESPACE INDREFLIMIT REPORTONLY and REORG TABLESPACE OFFPOSLIMIT REPORTONLY is deprecated. REPORTONLY is valid only when INDREFLIMIT or OFFPOSLIMIT option is specified, and these options are deprecated.
- REORG INDEX UNLOAD ONLY is deprecated. Use the DIAGNOSE utility stop the process instead.
- REORG INDEX LEAFDISTLIMIT is deprecated. Use the DSNACCOX stored procedure to determine if the object needs to be reorganized.
- REORG INDEX LEAFDISTLIMIT REPORTONLY is deprecated. REPORTONLY is valid only when LEAFDISTLIMIT option is specified, and this option is deprecated.
- LOAD FORMAT UNLOAD is deprecated. Use the LOAD FORMAT INTERNAL option to load data that was unloaded with UNLOAD FORMAT INTERNAL.
- COPY CHANGELIMIT is deprecated. Use the DSNACCOX stored procedure to determine if the object needs to be copied.
- REPAIR VERSIONS is deprecated. Use the REPAIR CATALOG utility instead

Additionally, you should be aware of the following changes:

- As of DB2 11, password protection for active log and archive log data sets is no longer supported.
- The DSNH CLIST no longer supports values of NEWFUN=V8 or NEWFUN=V9.
- The following DB2-supplied routines are removed in DB2 11 and are unavailable to callers after migration to conversion mode. A report is added to the DSNTIJPM premigration job to detect occurrences of these routines on an existing

subsystem or data sharing group, and to specify that these routines are not available in DB2 11.

- SYSPROC.DSNAEXP
- AMI-based DB2 MQ functions:

  DB2MQ1C.GETCOL
  DB2MQ1C.MQPUBLISH
  DB2MQ1C.MQREAD
  DB2MQ1C.MQSUBSCRIBE
  DB2MQ1C.MQUNSUBSCRIBE
  DB2MQ2C.GETCOL
  DB2MQ2C.MQPUBLISH
  DB2MQ2C.MQREAD
  DB2MQ2C.MQSUBSCRIBE
  DB2MQ2C.MQUNSUBSCRIBE

The following subsystem parameters are removed in DB2 11:

ASSIST
COORDNTR
DISABSCL
DISALLOW_DEFAULT_COLLID
MSVGP
MSVGP2
OJPERFEH
OPTIOPIN
OPTIOWGT
OPTIXIO
PGRNGSCR
PTCDIO
RETVLCFK
SEQCACH
SEQPRES
SMSDCFL
SMSDCIX
STATCLUS

The application programming default value CHARSET is removed in DB2 11

In DB2 11, you cannot use the BIND PACKAGE options ENABLE and DISABLE (REMOTE) REMOTE **(location-name,...,(luname),...)** to enable or disable specific remote connections. You can use the ENABLE(REMOTE) or DISABLE(REMOTE) options to enable or disable all remote connections.

In DB2 11, Sysplex query parallelism is no longer supported. Packages that used Sysplex query parallelism in releases before DB2 11 use CPU parallelism in DB2 11.

In DB2 11, the DSN1CHKR utility is no longer supported. The DSN18101 and DSN18161 messages are issued when the DSN1CHKR utility is invoked.

Installability

Migration considerations

DB2 11 is upwardly compatible with earlier releases of DB2 for z/OS . Migration with full fallback protection is available for customers running on DB2 10 for z/OS . Existing customers should ensure they are successfully running on DB2 10 for z/OS (NFM) before migrating to DB2 11. For more migration information, see Info APAR II14660.

Packaging

Included with each base or optional feature of DB2 11 is a Program Directory and other media, such as CD-ROM, as applicable:

DB2 for z/OS (English and Japanese features)

Title	Order number
DB2 11 for z/OS Program Directory	GI10-8945
DB2 Licensed Library Collection CD-ROM	LK5T-8882
DB2 Licensed Program Specifications	GC19-4059

QMF Classic Edition (English)

Title	Order number
QMF Classic Edition Program Directory	GI10-8947

QMF Enterprise Edition (English)

Title	Order number
QMF Enterprise Edition Program Directory	GI10-8949
QMF for Workstation/WebSphere CD-ROM	LK5T-8888

z/OS Application Connectivity to DB2 for z/OS (English)

Title	Order number
z/OS Application Connectivity to DB2 for z/OS Program Directory	GI10-8946

QMF Classic Edition (Multilingual)

Title	Order number
QMF Classic Edition Program Directory	GI10-8948

QMF Enterprise Edition (Multilingual)

Title	Order number
QMF Enterprise Edition Program Directory	GI10-8950
QMF for Workstation/WebSphere CD-ROM	LK5T-8888

The following optional publications are available in PDF format and in the IBM Information Management Software for z/OS Solution Information Center. These publications are not available for ordering in hardcopy.

Title	Order number
DB2 11 for z/OS	
Administration Guide	SC19-4050
Application Programming and SQL Guide	SC19-4051
Application Programming Guide and Reference for Java	SC19-4052
Codes	GC19-4053
Command Reference	SC19-4054
Data Sharing: Planning and Administration	SC19-4055
Installation and Migration	GC19-4056
Internationalization Guide	SC19-4057
Introduction to DB2 for z/OS	SC19-4058
IRLM Messages and Codes for IMS and DB2 for z/OS	GC19-2666
Managing Performance	SC19-4060
Managing Security	SC19-4061
Messages	GC19-4062
ODBC Guide and Reference	SC19-4063
pureXML Guide	SC19-4064
RACF Access Control Module Guide	SC19-4065
SQL Reference	SC19-4066
Utility Guide and Reference	SC19-4067
What's New?	GC19-4068

The following QMF publications are delivered in softcopy only. When ordering DB2 11, these QMF publications are included on the DB2 11 for z/OS Licensed Library Product Kit CD-ROM, LK5T-8882:

Title	Order number
DB2 QMF High Performance Option User's Guide for TSO and CICS	SC19-3993
Installing and Managing DB2 QMF for Workstation and DB2 QMF for WebSphere	GC19-3994
Getting Started with DB2 QMF for Workstation and DB2 QMF for WebSphere	SC19-3995
Developing DB2 QMF Applications	SC19-3996
Installing and Managing DB2 QMF for TSO and CICS	GC19-3997
Introducing DB2 QMF	GC19-3998
DB2 QMF Messages and Codes	GC19-3999
DB2 QMF Reference	SC19-4000
Using DB2 QMF	SC19-4001

DB2 11 product information, except the licensed documentation, is viewable from the Information Management Software for z/OS Solutions Information Center at

http://pic.dhe.ibm.com/infocenter/dzichelp/v2r2/index.jsp

Security, auditability, and control

DB2 11 for z/OS uses the security and auditability features of the host z/OS systems. It also provides facilities for the protection and control of its resources. These facilities include controls for

- System access
- Data access and control
- Concurrent access
- Data recovery
- Accounting and auditing

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Ordering information

Ordering z/OS through the Internet

ShopzSeries provides an easy way to plan and order your z/OS ServerPac or CBPDO. It will analyze your current installation, determine the correct product migration, and present your new configuration based on z/OS . Additional products can also be added to your order (including determination of whether all product requisites are satisfied). ShopzSeries is available in the US, Canada, and several countries in Europe. In countries where ShopzSeries is not available yet, contact your IBM representative (or IBM Business Partner) to handle your order via the traditional IBM ordering process. For more details and availability, visit the ShopzSeries website at

http://www14.software.ibm.com/webapp/ShopzSeries/ShopzSeries.jsp

The CBPDO order activation date is October 22, 2013.

New licensees

Orders for new licenses can be placed now.

Registered customers can access IBMLink for ordering information and charges.

Shipment will not occur before the availability date.

Unless a later date is specified, orders entered before the planned availability date will be assigned a schedule date of one week following availability.

New users of DB2 11 for z/OS should specify:

```
Type: 5615       Model: DB2
```

Parallel Sysplex® license charge (PSLC) basic license

To order a basic license, specify the program number and quantity of MSU.

If there is more than one program copy in a Parallel Sysplex , the charge for all copies is associated to one license by specifying the applicable PSLC license options and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex . For all other program copies, specify the System Usage Registration No-Charge (SYSUSGREG NC) Identifier on the licenses.

Program name: DB2 11 for z/OS

Program PID: 5615-DB2

Entitlement identifier	Description	License option/ Pricing metric
S0171R2	DB2 11 for z/OS	Basic MLC, PSLC(ABCD)
S0171R3	QMF Classic Edition	Basic MLC, PSLC(ABCD)
S0171R4	QMF Enterprise Edition	Basic MLC, PSLC(ABCD)

Advanced Workload License Charges (AWLC) basic license

To order a basic license, specify the program number and quantity of MSUs. If there is more than one program copy in a Parallel Sysplex , the charge for all copies is associated to one license by specifying the applicable AWLC license options

and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex . For all other program copies, specify the System Usage Registration No-Charge (SYSUSGREG NC) Identifier on the licenses.

Program name: DB2 11 for z/OS

Program PID: 5615-DB2

Entitlement identifier	Description	License option/ Pricing metric
S0171R2	DB2 11 for z/OS	Basic MLC, AWLC
S0171R3	QMF Classic Edition	Basic MLC, AWLC
S0171R4	QMF Enterprise Edition	Basic MLC, AWLC

Advanced Entry Workload License Charges (AEWLC) basic license

The AEWLC pricing metric leverages the reporting mechanisms and existing Millions of Service Units per hour (MSU) tiers of the Entry Workload License Charges (EWLC) pricing metric while extending the software price/performance provided by EWLC and MWLC. For details, refer to Software Announcement ZP11-0311, dated July 12, 2011 .

To order a basic license, specify the program number and quantity of MSUs.

Program name: DB2 11 for z/OS

Program PID: 5615-DB2

Entitlement identifier	Description	License option / pricing metric
S0171R2	DB2 11 for z/OS	Basic MLC, AEWLC
S0171R3	QMF Classic Edition	Basic MLC, AEWLC
S0171R4	QMF Enterprise Edition	Basic MLC, AEWLC

Workload License Charge (WLC) Basic License

If there is more than one program copy in a Parallel Sysplex , the charge for all copies is associated to one license by specifying the applicable WLC license options and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex . For all other program copies, specify the Workload Registration Variable WLC Identifier on the licenses.

Program name: DB2 11 for z/OS

Program PID: 5615-DB2

Entitlement identifier	Description	License option/ Pricing metric
S0171R2	DB2 11 for z/OS	Basic MLC, VWLC
S0171R3	QMF Classic Edition	Basic MLC, VWLC
S0171R4	QMF Enterprise Edition	Basic MLC, VWLC

Entry Workload License Charge (EWLC) Basic License

To order a basic license, specify the program number and the quantity of MSUs.

Entitlement identifier	Description	License option/ Pricing metric
S0171R2	DB2 11 for z/OS	Basic MLC, EWLC
S0171R3	QMF Classic Edition	Basic MLC, EWLC
S0171R4	QMF Enterprise Edition	Basic MLC, EWLC

S/390® and System z Usage License Charge, basic license: Specify the applicable S/390 and System z Usage License Charge option.

Charges will be based upon the Peak MSUs. Usage reported between thresholds of features 1, 2, or 3, will be rounded up to the next MSU level. Above 1.0 MSU, usage will be rounded to the nearest whole MSU. For example, 2.4 MSUs would round to 2.0 MSUs for pricing, and 2.5 MSUs would round to 3.0 MSUs for pricing.

The customer pricing will be determined by selecting either:

Entitlement identifier	Description	License option/ Pricing metric
S0171R2	DB2 11 for z/OS	Basic MLC, ULC

System z entry license charge (zELC)

To order zELC software, specify the program number and the corresponding machine capacity setting. zELC is available on the IBM zEnterprise 114 and the IBM zEnterprise BC12 capacity setting A01.

Program name: DB2 11 for z/OS

Program PID: 5615-DB2

Specify the zELC monthly license option.

Entitlement identifier	Description	License option/ Pricing metric
S0171R2	DB2 11 for z/OS	Basic MLC, zELC
S0171R3	QMF Classic Edition	Basic MLC, zELC
S0171R4	QMF Enterprise Edition	Basic MLC, zELC

The following feature is no charge.

No-Charge Entitlement identifier	Description
S0171R5	z/OS Application Connectivity to DB2 for z/OS

Specify the zELC monthly charge feature number. Also, specify the feature number for the desired distribution medium.

Basic machine-readable material

Orderable Supply ID	Language	Distribution medium	Description
S0178GK	US English	3590 Tape Cartridge	DB2 11 for z/OS
S0178GM	US English	3590 Tape Cartridge	QMF Classic Edition
S0178GP	US English	3590 Tape Cartridge	QMF Enterprise Edition
S0178GS	US English	3590 Tape Cartridge	z/OS App Connect
S0178GL	Japanese	3590 Tape Cartridge	DB2 11 for z/OS
S0178GN	Multilingual	3590 Tape Cartridge	QMF Classic Edition
S0178GR	Multilingual	3590 Tape Cartridge	QMF Enterprise Edition

Supply Function	Description
S0178GF	DB2 11 for z/OS
S0178GH	QMF Enterprise Edition
S0178GG	QMF Classic Edition
S0178GJ	z/OS Application Connect

Publications

A program directory is shipped with the basic machine-readable material.

The following DB2 11 publications are shipped with the product.

Title	Order number
DB2 11 for z/OS	
Program Directory	GI10-8945
Licensed Program Specifications	GC19-4059
Licensed Library Product Kit CD-ROM	LK5T-8882

The following optional publications are available in PDF format and in the IBM Information Management Software for z/OS Solution Information Center. These publications are not available for ordering in hardcopy.

Title	Order number
DB2 11 for z/OS	
Administration Guide	SC19-4050
Application Programming and SQL Guide	SC19-4051
Application Programming Guide and Reference for Java	SC19-4052
Codes	GC19-4053
Command Reference	SC19-4054
Data Sharing: Planning and Administration	SC19-4055
Installation and Migration	GC19-4056
Internationalization Guide	SC19-4057
Introduction to DB2 for z/OS	SC19-4058
IRLM Messages and Codes for IMS and DB2 for z/OS	GC19-2666
Managing Performance	SC19-4060
Managing Security	SC19-4061
Messages	GC19-4062
ODBC Guide and Reference	SC19-4063
pureXML Guide	SC19-4064
RACF Access Control Module Guide	SC19-4065
SQL Reference	SC19-4066
Utility Guide and Reference	SC19-4067
What's New?	GC19-4068

The following QMF publications are delivered in softcopy only. When ordering DB2 11, these QMF publications are included on the publication DB2 11 for z/OS Licensed Library Product Kit CD-ROM, LK5T-8882.

Title	Order number
DB2 QMF High Performance Option Users Guide for TSO and CICS	SC19-3993
Installing and Managing DB2 QMF for Workstation and DB2 QMF for WebSphere	GC19-3994
Getting Started with DB2 QMF for Workstation and DB2 QMF for WebSphere	SC19-3995
Developing DB2 QMF Applications	SC19-3996
Installing and Managing DB2 QMF for TSO and CICS	GC19-3997
Introducing DB2 QMF	GC19-3998
DB2 QMF Messages and Codes	GC19-3999
DB2 QMF Reference	SC19-4000
Using DB2 QMF	SC19-4001

DB2 11 product information, except the licensed documentation, is viewable from the Information Management Software for z/OS Solutions Information Center at

http://pic.dhe.ibm.com/infocenter/dzichelp/v2r2/index.jsp

Licensed documentation

The following licensed material is available only to customers with a DB2 11 license. In addition, the Diagnosis Guide and Reference is shipped in a DB2 data set (*.SDSNIVPD member DSNDR) that is updated during post general availability. FTP the data set to the workstation and open it with Adobe™ Acrobat Reader.

Title	Order number
DB2 11 for z/OS Diagnosis Guide and Reference	LY37-3222

Terms and conditions for use of the machine-readable files are shipped with the files.

Subsequent updates (technical newsletters or revisions between releases) to the publications shipped with the product will be distributed to the user of record for as long as a license for this software remains in effect. A separate publication order or subscription is not needed.

Customized offerings

Product deliverables are shipped only via CBPDO, ServerPac, SystemPac® .

CBPDO and ServerPac are offered for Internet delivery in countries where ShopzSeries product ordering is available. Internet delivery reduces software delivery time and allows you to install software without the need to handle tapes. For more details on Internet delivery, refer to the ShopzSeries help information at

http://www.software.ibm.com/ShopzSeries

You choose the delivery method when you order the software. IBM recommends Internet delivery. In addition to Internet and DVD, the supported tape delivery options for CBPDO, ServerPac, SystemPac include:

- 3590
- 3592

Most products can be ordered in ServerPac and SystemPac the month following their availability on CBPDO. z/OS can be ordered via all three offerings at general availability. Production of software product orders will begin on the planned general availability date.

- CBPDO shipments will begin one week after general availability.
- ServerPac shipments will begin two weeks after general availability
- SystemPac shipments will begin four weeks after general availability due to additional customization, and data input verification.

Global Technology Services

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings for the efficient installation, implementation, and integration of this product.

Terms and conditions

Indexed monthly license charge (IMLC) applies

No

Location license applies

No

Use limitation applies

No

Educational allowance available

Yes, 15% education allowance applies to qualified education institution customers.

ESAP available

Yes, to qualified customers.

Volume orders

Not applicable.

Replaced programs		Replacement programs	
Program number	Program name	Program number	Program name
5740-XYR	DB2 V1	5615-DB2	DB2 11
5665-DB2	DB2 V2	5615-DB2	DB2 11
5685-DB2	DB2 V3	5615-DB2	DB2 11
5695-DB2	DB2 V4	5615-DB2	DB2 11
5655-DB2	DB2 V5	5615-DB2	DB2 11
5645-DB2	DB2 V6	5615-DB2	DB2 11
5675-DB2	DB2 V7	5615-DB2	DB2 11
5625-DB2	DB2 V8	5615-DB2	DB2 11
5635-DB2	DB2 V9	5615-DB2	DB2 11
5605-DB2	DB2 V10	5615-DB2	DB2 11
5615-DB2	DB2 V11	To a follow-on program, if any.	

Warranty applies

Yes

Licensed program materials availability

```
Restricted Materials of IBM:     Some
Non-Restricted Source Materials: Some
Object Code Only (OCO):          None
```

Program services

Support Center applies:	Yes
	Access available through the IBM Support Center
Available until discontinued:	12-months' written notice
APAR Mailing Address:	IBM Corporation APAR Processing 555 Bailey Avenue San Jose, CA 95141

IBM Electronic Services

Electronic Service Agent™ and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems customers. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company's strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support all at no additional cost to you.

Now integrated into the base operating system of AIX® 5.3, AIX 6.1, and AIX 7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM , which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type "smitty esa_main", and select "Configure Electronic Service Agent ." In addition, ESA now includes a powerful Web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent , refer to

http://www.ibm.com/support/electronic

The IBM Electronic Support portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled customers to track system inventory and find pertinent fixes.

Benefits

Increased uptime: The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the "symptoms," diagnosing the error, and manually calling IBM Support to open a problem record. Its 24 x 7 monitoring and reporting mean no more dependence on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM . The Electronic Service Agent tool securely transmits either via the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable

only by the customer and IBM . The customer's business applications or business data is never transmitted to IBM .

More accurate reporting: Since system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM , problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

Customized support: Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Support website at

http://www.ibm.com/support/electronic

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent . Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Electronic Service Agent information that has been collected from your system, customers are able to see search results that apply specifically to their systems.

For more information on how to utilize the power of IBM Electronic Services, contact your IBM Systems Services Representative, or visit

http://www.ibm.com/support/electronic

Prices

For all local charges, contact your IBM representative.

Announcement countries

All European, Middle Eastern, and African countries except

- Iran
- Sudan
- Syria

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http://www.ibm.com/legal/us/en/

For the most current information regarding IBM products, consult your IBM representative or reseller, or visit the IBM worldwide contacts page

http://www.ibm.com/planetwide/